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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KREMER, MATTHEW J

ART UNIT PAPER NUMBER

3736

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,012

Applicant(s)

RANTALA ET AL.

Examiner

Matthew J Kremer

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-13, and 16 is/are rejected.
- 7) ☐ Claim(s) 5-8, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 10-13, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2004/0002637 to Huang et al. (Huang). In regard to claim 1, Huang teaches an oximeter that has an emitter, a driving means and a detector. (Abstract and paragraph 0038 of Huang). Huang also teaches a method that includes supplying driving pulses to the emitters (Abstract of Huang), demodulating the electrical signal from the detector and monitoring the signal to noise ratio (paragraph 0038 of Huang), and controlling the duty cycle (the frequency, pulse width or waveform of the emitted signal) (paragraph 0063 of Huang). In regard to claims 2-3 and 13, upper and lower thresholds are disclosed. (paragraphs 0059-0060 of Huang). In regard to claims 10-11 and 16, the device is an oximeter. (paragraph 0022 of Huang). In regard to claim 12, Huang teaches an emitter; a driving means (the power unit); a detector; and a control unit that demodulates the electrical signal, that monitors

the signal to noise ratio, and that controls the duty cycle of the emitters. (Abstract and paragraphs 0038 and 0063 of Huang).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2004/0002637 to Huang et al. (Huang) as applied to claim 3 in view of U.S. Patent 5,348,004 to Hollub. In regard to claim 4, Huang teaches the use of a preamplifier (paragraph 0076 of Hollub) but does not teach the use of a low pass filter. Hollub teaches that a low pass filter removes unwanted noise. (column 6, lines 50-55 of Hollub). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the low pass filter of Hollub in the device of Huang since a low pass filter removes unwanted noise.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2004/0002637 to Huang et al. (Huang) as applied to claim 1, in view of U.S. Patent 4,859,057 to Taylor et al. (Taylor) and U.S. Patent 6,714,803 to Mortz. Huang does not teach sampling of the electrical signal by a

synchronous detector. Taylor teaches such a synchronous detector. (column 8, line 59 to column 9, line 3 of Taylor). Mortz teaches that such synchronous detection allows the red and infrared wavelengths to be distinguished. (column 5, lines 4-7 of Mortz).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the synchronous detection of Taylor in the method and apparatus of Huang since such detection allows the red and infrared wavelengths to be distinguished.

6. Claims 1, 10-12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,731,967 to Turcott in view of U.S. Patent 6,356,774 to Bernstein et al. (Bernstein). In regard to claim 1, Turcott teaches an oximeter that has emitters 306, a driving means 302 and a detector 314. (Fig. 10A of Turcott). Turcott also teaches a method that includes supplying driving pulses to the emitters in step 1202, demodulating the electrical signal from the detector and obtaining a baseband signal (the feedback signal) in step 1206, and controlling the duty cycle in step 1210 (column 15, line 33 to column 16, line 4 and Fig. 12 of Turcott). Turcott does not explicitly teach the step of monitoring a signal to noise ratio but Turcott teaches comparing the feedback signal to a reference signal (column 15, lines 55-59 of Turcott) and using the method for electrical sensing optimization and noise rejection (column 16, lines 23-28 of Turcott). Bernstein teaches that a suitable comparison signal for electrical sensing optimization and noise rejection is the signal to noise ratio. (see Abstract of column 11, lines 48-51 of Bernstein). Therefore, it would have been obvious

to one having ordinary skill in the art at the time the invention was made to use the signal to noise ratio as disclosed by Bernstein since Turcott teaches that the method is used for electrical sensing optimization and noise rejection and Bernstein teaches a suitable measure for such optimization and noise rejection. In regard to claim 13, Turcott teaches an oximeter that has emitters, a driving means, a detector, a demodulator unit, monitoring means, and power control means. (Fig. 10A-10B of Turcott).

Allowable Subject Matter

7. Claims 5-8 and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter. In regard to claim 5, Huang and Turcott do not teach or suggest that the controlling step includes decreasing the bandwidth of said low-pass filter when the width of said pulses is increased. In regard to claim 7, Huang and Turcott do not teach or suggest that the controlling step includes increasing the bandwidth of said low-pass filter when the width of said pulses is decreased. In regard to claim 14, Huang and Turcott do not teach or suggest that a first means is adapted to change the width of said pulses and of the passband of the low-pass filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J Kremer whose telephone number is 703-605-0421. The examiner can normally be reached on Mon. through Fri. between 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mary Beth Jones can be reached on 703-308-3400. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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MARY BETH JONES
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